

Claims

What is claimed is:

1. A process for monitoring dispensing of one or more dispensable compositions comprising:

5 (A) reading a current dispensable composition information disposed on identification tags affixed to reservoirs positioned in a dispensing device, said reservoirs containing said dispensable compositions and wherein said current information is stored on a host computer in communication with a client computer of said device, or on said client
10 computer and said host computer;

(B) terminating said process if said current information does not match with a stored dispensable composition information of said dispensable compositions stored on said host computer, or on said client computer and said host computer; or

15 (C) continuing said process if said current information matches with said stored information, said process further comprising:

(C1) dispensing one or more said dispensable compositions in accordance with a dispensing program through one or more dispensing heads of said dispensing device,

20 (C2) generating updated dispensable composition information of said dispensable compositions,

(C3) writing said updated information to said identification tags, and

25 (C4) storing said updated information on said host computer, or on said host computer and said client computer.

2. The process of claim 1 wherein in said step (A) said current dispensable composition information is read with one or more means for reading said identification tags.

30 3. The process of claim 1 wherein step (C2) comprises deducting dispensed quantities of one or more said dispensable compositions from current quantities registered in said current dispensable composition information to arrive at updated quantities of one or more said dispensable compositions registered in said updated dispensable composition information.

35 4. The process of claim 1 wherein in said step (C3) said updated dispensable composition information is written with one or more means for writing to said identification tags.

5. The process of claim 1 wherein in said step (C) said process is terminated if current quantities of said dispensable compositions registered in said current dispensable composition information exceed stored quantities of said dispensable compositions registered in said
5 stored dispensable composition information.

6. The process of claim 1 wherein said current dispensable composition information comprises current quantity of said dispensable composition contained in said dispensable composition reservoir, identity of said dispensable composition, compositional structure of said
10 dispensable composition, price of said dispensable composition contained in said dispensable composition reservoir, serial number of said dispensable composition reservoir, place of manufacture of said dispensable composition, location of said dispensable composition reservoir, date of manufacture of said dispensable composition, date of
15 expiration of said dispensable composition, toxicity information of said dispensable composition, MSDS of said dispensable composition, manufacturer of said dispensable composition and contact information thereof; or a combination thereof.

7. The process of claim 1 wherein said updated dispensable composition information comprises updated quantity of said dispensable
20 composition contained in said dispensable composition reservoir, identity of said dispensable composition, compositional structure of said dispensable composition, price of said dispensable composition contained in said dispensable composition reservoir, serial number of said
25 dispensable composition reservoir, place of manufacture of said dispensable composition, location of said dispensable composition reservoir, date of manufacture of said dispensable composition, date of expiration of said dispensable composition, toxicity information of said dispensable composition, MSDS of said dispensable composition,
30 manufacturer of said dispensable composition and contact information thereof; or a combination thereof.

8. The process of claim 1 further comprises replenishing some or all of said dispensable compositions dispensed in said step (C1).

9. The process of claim 1 wherein said identification tag is a RFID
35 tag.

10. The process of claim 9 wherein one or more identification tag interrogators positioned near said reservoirs comprise said means for reading from and said means for writing to said tags.

11. The process of claim 10 wherein said identification tag interrogator is a RFID tag interrogator.

12. The process of claim 1 or 11 wherein said identification tag is a passive or active RFID tag.

5 13. The process of claim 12 wherein said passive or said active RFID tag is disposed on an insulated substrate.

14. The process of claim 1 wherein said reservoir is a disposable bag nested in a receptacle located in said dispensing device.

10 15. The process of claim 1 wherein said dispensable composition is an ink jet ink, electrically conductive ink, or biomaterial.

16. The process of claim 1 wherein in said step (C1) said dispensing composition is dispensed on a target substrate.

15 17. The process of claim 16 wherein said target substrate is a cellulose paper, polymeric film, polymeric laminate, woven fabric, non-woven fabric, a biologically active substrate, or a circuit board.

18. The process of claim 16 wherein said dispensable composition is electrically conductive ink deposited on said target substrate comprising an electrically insulated film.

20 19. The process of claim 18 wherein said target substrate is one or more RFID tags.

20. The process of claim 16 wherein said dispensable composition is biomaterial deposited on said target substrate comprising a biologically active substrate.

25 21. The process of claim 20 wherein said biologically active target substrate is a two-dimensional or a three-dimensional array used in diagnostic or screening devices.

22. The process of claim 16 wherein said dispensable composition comprises clumps or animal or human cells dispensed on said target substrate comprising a scaffolding substrate.

30 23. The process of claim 22 comprising growing tissues, organs, cells, skin grown on said scaffolding substrate.

24. A process for monitoring dispensing of one or more ink compositions comprising:

35 (A) receiving from a client computer of a dispensing device a current dispensable composition information disposed on identification tags affixed to reservoirs positioned in said dispensing device, said reservoirs containing said dispensable compositions and wherein said

current information is stored on a host computer in communication with said client computer;

- 5 (B) instructing means for dispensing of said device to terminate said process if said current information does not match with a stored dispensable composition information of said dispensable compositions stored on said host computer, or on said client computer and said host computer; or

- 10 (C) instructing said device to continue said process if said current information matches with said stored information, said process further comprising:

(C1) receiving updated dispensable composition information of said dispensable compositions from said client computer; and

- 15 (C2) storing said updated information on said host computer, or on said host computer and said client computer.

25. The process of claim 24 further comprising replenishing some or all of said dispensable compositions dispensed by said dispensing device.